EPA

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E. Windsor

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comprehensive Assessment Information Rule

REPORTING FORM

90-930000006

EPA-OTS
0007870200

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

Document
Control Number: _____

Docket Number: _____

EPA Form 7710-52

X 4. Have you submitted a completed separate form for each substance you are required to report on?

X 5. Have you submitted a completed separate form for each site at which you manufacture, import, or process a listed substance?

X 6. For each listed substance you must report on, have you reported on all activities you engage in at each site using the listed substance on the same reporting form?

N/A 7. If you are claiming information as Confidential Business Information (CBI), have you completed the CBI substantiation form in Appendix II of the form for each category containing CBI? Failure to submit a completed CBI substantiation form with a reporting form containing CBI will result in the waiver of your claim of confidentiality.

X 8. For each question that you are required to answer, have you responded by either providing the data, stating not applicable ("N/A"), or, if the question permits, stating unknown ("UK")?

X 9. Have you right justified your responses to questions asked that require respondents to give a numeric response in a series of boxes (e.g., the answer "372" is entered as [0][0][3][7][2])?

X 10. Have your responses been given in alpha, numeric or alpha-numeric form such as 3 million or 3,000,000? Responses must not be given in scientific notation such as 3×10^6.

X 11. If you needed additional space to report the required data, have you checked the continuation sheet box at the bottom of each page that requires additional space; attached additional copies of the specific questions of this form that contain additional information; and listed the attachments in Appendix I of the reporting form?

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

[ ] (Yes) ..... [X] Go to question 1.04

No ..... [ ] Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

Yes 1

[ ] (No) 2

b. Check the appropriate box below:

[X] You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) .... Solithane 113 (Morton Thiokol)

[ ] You have chosen to report for your customers

[ ] You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

Trade name ..... _____

[ ]

Is the trade name product a mixture? Circle the appropriate response.

(Yes) 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

"I hereby certify that, to the best of my knowledge and belief, all information

[ ] entered on this form is complete and accurate."

Pamela S. Bailey	Pamela S. Bailey	12/2/92
NAME	SIGNATURE	DATE SIGNED
Senior Industrial Hygienist	(609) 490 - 6861	(update from 9/12/89 report)
TITLE	TELEPHONE NO.	

[ ] Mark (X) this box if you attach a continuation sheet.

Read & Reviewed:
Carol A Farrell 12/6/92

1.11 Parent Company Identification

CBI Name [G][E][N][E][R][A][L][ ][E][L][E][C][T][R][I][C][ ][C][O][M][P][A][N][Y][ ][ ]

[ ] Address [3][1][3][5][ ][E][A][S][T][ ][O][N][ ][T][U][R][N][P][I][K][E][ ][ ][ ][ ][ ]
Street

[F][A][I][R][F][I][E][L][D][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
City

[C][T] [0][6][4][3][1]--[ ][ ][ ][ ]
State Zip

Dun & Bradstreet Number ..... N/A [0][0]-[3][8][6]-[0][3][8][6]

1.12 Technical Contact

CBI Name [C][A][R][O][L][ ][A][ ][P][A][R][N][E][L][L][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

[ ] Title [E][N][S][ ][M][A][N][A][G][E][R][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Address [P][O][ ][B][O][X][ ][3][0][2][ ][D][E][P][T][ ][ ][R][ ][3][6][C][ ][ ][ ][ ]
Street

[P][R][I][N][C][E][T][O][N][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
City

[N][J] [0][8][5][4][3]--[0][8][0][0]
State Zip

Telephone Number ..... [6][0][9]-[4][9][0]-[4][4][9][2]

1.13 This reporting year is from ..... [0][1] [8][7] to [1][2] [8][8]
Mo. Year Mo. Year

[ ] Mark (X) this box if you attach a continuation sheet.

1.14 Facility Acquired -- If you purchased this facility during the reporting year, provide the following information about the seller: N/A

CBI Name of Seller [_]

[_] Mailing Address [_]
Street

[_]
City

[_][_] State [_][_][_][_][_]--[_][_][_][_] Zip

Employer ID Number ....[_][_][_][_][_][_][_][_][_]

Date of Sale ....[_][_] Mo. [_][_] Day [_][_] Year

Contact Person [_]

Telephone Number ....[_][_][_]-[_][_][_]-[_][_][_][_]

1.15 Facility Sold -- If you sold this facility during the reporting year, provide the following information about the buyer: N/A

CBI Name of Buyer [_]

[_] Mailing Address [_]
Street

[_]
City

[_][_] State [_][_][_][_][_]--[_][_][_][_] Zip

Employer ID Number ....[_][_][_][_][_][_][_][_][_]

Date of Purchase ....[_][_] Mo. [_][_] Day [_][_] Year

Contact Person [_]

Telephone Number ....[_][_][_]-[_][_][_]-[_][_][_][_]

[_] Mark (X) this box if you attach a continuation sheet.

PART C IDENTIFICATION OF MIXTURES

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

CBI

[ ]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)	
2,4 Toluene Diisocyanate	Morton Thiokol	6.5	.5
Isocyanate terminated polylol	Morton Thiokol	93.5	.5
NA	NA	NA	
NA	NA	NA	
NA	NA	NA	
NA	NA	NA	
		Total	100%

[ ] Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

[ ] Year ending ..... [1][2] Mo. [8][7] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 3.00 kg

Year ending ..... [1][2] Mo. [8][6] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 3.00 kg

Year ending ..... [1][2] Mo. [8][5] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 6.00 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

N/A

[ ]

Continuous process 1

Semicontinuous process 2

Batch process 3

[ ] Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

[ ]

	Days/Year	Average Hours/Day
Process Type #1 (The process type involving the largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	260	1.5-2.0
Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	NA	NA
Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	NA	NA

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

[ ] N/A

Maximum daily inventory ..... _____ kg

Average monthly inventory ..... _____ kg

[ ] Mark (X) this box if you attach a continuation sheet.

2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI
[ ]

a. Product Types[1]	b. % of Quantity Manufactured, Imported, or Processed	c. % of Quantity Used Captively On-Site	d. Type of End-Users[2]
K	100%	100%	CM
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

[1]Use the following codes to designate product types:

A = Solvent
B = Synthetic reactant
C = Catalyst/Initiator/Accelerator/Sensitizer
D = Inhibitor/Stabilizer/Scavenger/Antioxidant
E = Analytical reagent
F = Chelator/Coagulant/Sequestrant
G = Cleanser/Detergent/Degreaser
H = Lubricant/Friction modifier/Antiwear agent
I = Surfactant/Emulsifier
J = Flame retardant
K = Coating/Binder/Adhesive and additives
L = Moldable/Castable/Rubber and additives
M = Plasticizer
N = Dye/Pigment/Colorant/Ink and additives
O = Photographic/Reprographic chemical and additives
P = Electrodeposition/Plating chemicals
Q = Fuel and fuel additives
R = Explosive chemicals and additives
S = Fragrance/Flavor chemicals
T = Pollution control chemicals
U = Functional fluids and additives
V = Metal alloy and additives
W = Rheological modifier
X = Other (specify) NA

[2]Use the following codes to designate the type of end-users:

I = Industrial
CM = Commercial
CS = Consumer
H = Other (specify) NA

[ ] Mark (X) this box if you attach a continuation sheet.

2.14 CBI [ ] Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity. N/A No listed substance remains

a. Product Type[1]	b. Final Product's Physical Form[2]	c. Average % Composition of Listed Substance in Final Product	d. Type of End-Users[3]
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

[1]Use the following codes to designate product types:

A = Solvent
B = Synthetic reactant
C = Catalyst/Initiator/Accelerator/Sensitizer
D = Inhibitor/Stabilizer/Scavenger/Antioxidant
E = Analytical reagent
F = Chelator/Coagulant/Sequestrant
G = Cleanser/Detergent/Degreaser
H = Lubricant/Friction modifier/Antiwear agent
I = Surfactant/Emulsifier
J = Flame retardant
K = Coating/Binder/Adhesive and additives
L = Moldable/Castable/Rubber and additives
M = Plasticizer
N = Dye/Pigment/Colorant/Ink and additives
O = Photographic/Reprographic chemical and additives
P = Electrodeposition/Plating chemicals
Q = Fuel and fuel additives
R = Explosive chemicals and additives
S = Fragrance/Flavor chemicals
T = Pollution control chemicals
U = Functional fluids and additives
V = Metal alloy and additives
W = Rheological modifier
X = Other (specify) NA

[2]Use the following codes to designate the final product's physical form:

A = Gas
B = Liquid
C = Aqueous solution
D = Paste
E = Slurry
F1 = Powder
F2 = Crystalline solid
F3 = Granules
F4 = Other solid
G = Gel
H = Other (specify) NA

[3]Use the following codes to designate the type of end-users:

I = Industrial
CM = Commercial
CS = Consumer
H = Other (specify) NA

[ ] Mark (X) this box if you attach a continuation sheet.

2.17 State the quantity of the listed substance that you exported during the reporting year.

CBI

[ ]

In bulk	NA	kg/yr
As a mixture	Less Than 1	kg/yr
In articles	NA	kg/yr

[ ] Mark (X) this box if you attach a continuation sheet.

3.03 CBI a. Circle all applicable containers used to transport the listed substance to your facility.

[ ]

Bags 1

Boxes 2

Free standing tank cylinders 3

Tank rail cars 4

Hopper cars 5

Tank trucks 6

Hopper trucks 7

Drums 8

Pipeline 9

Other (specify) @1 gallon can 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders ..... NA mmHg

Tank rail cars ..... NA mmHg

Tank trucks ..... NA mmHg

[ ] Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 CBI [ ] State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

	Quantity Used (kg/yr)	% Composition by Weight of Listed Substance in Raw Material (specify ± % precision)
Class I chemical	47.67	6-7% ± 1
	NA	NA
	NA	NA
Class II chemical	NA	NA
	NA	NA
	NA	NA
Polymer	NA	NA
	NA	NA
	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes 1

No ..... (2)

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

[ ]

	Physical State				
Activity	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	(3)	4	5
Store	(1)	2	3	4	5
Dispose	(1)	2	3	4	5
Transport	(1)	2	3	4	5

[ ] Mark (X) this box if you attach a continuation sheet.

PART B FIRE, EXPLOSION, AND OTHER HAZARD DATA

4.06 For each physical state of the listed substance, specify the corresponding flashpoint, and the test method used to derive the flashpoint value.

Solid N/A

Flashpoint ..... _____ °C

Test method ..... _____

Liquid

Flashpoint ..... _____ °C

Test method ..... _____

Gas/Vapor

Flashpoint ..... _____ °C

Test method ..... _____

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

4.07 Indicate the temperature at which the listed substance undergoes autopolymerization or autodecomposition. See MSDS

Autopolymerizes at ..... _____ °C

Autodecomposes at ..... _____ °C

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes ..... (1)

No 2

[ ] Mark (X) this box if you attach a continuation sheet.

4.09 Extinguishing Media -- Identify (Y/N/NA/UK) all known methods for extinguishing flames caused by each product type which contains the listed substance. (Refer to the instructions for the definition of Y, N, NA and UK.)

Extinguishing Media	Product Types Containing the Listed Substance[1]					
	1	2	3	4	5	6
Water	NA	NA	NA	NA	NA	NA
Foam	NA	NA	NA	NA	NA	NA
CO_2	NA	NA	NA	NA	NA	NA
Dry chemical (e.g., sodium bicarbonate)	NA	NA	NA	NA	NA	NA
Halogenated hydrocarbon (e.g., carbon tetrachloride, methyl bromide)	NA	NA	NA	NA	NA	NA
Other (specify) _____	NA	NA	NA	NA	NA	NA

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

(Yes) 1

No 2

---

[1]Identify the product types listed under each column (1-6) in the following table:

Product Type No.	Product Type Identity
1	NA
2	NA
3	NA
4	NA
5	NA
6	NA

[ ] Mark (X) this box if you attach a continuation sheet.

4.11 Incompatibility -- List all chemicals, materials, or categories of chemicals or materials that you know are incompatible with the listed substance and the reason why they are incompatible. (Refer to the instructions for further explanation and an example.)

CAS No.	Name	Reaction (specify)
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

(Yes) 1

No 2

4.12 Autoxidation -- Is the listed substance capable of autoxidation? Circle the appropriate response.

Yes 1

No 2

Unknown ..... (3)

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

(Yes) 1

No 2

[ ] Mark (X) this box if you attach a continuation sheet.

4.15 Shipment Procedures -- If you use an inhibitor or stabilizer when shipping the listed substance in bulk form, specify its name, whether it inhibits or stabilizes the listed substance, the amount normally added, and the duration of its effectiveness.

CBI

[ ]

Name of Additive	Inhibitor or Stabilizer[1]	Amount Normally Added (ppm or %)	Duration of Effectiveness (specify units)
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

(Yes) ..... (1)

No 2

---

[1]Use the following codes to designate inhibitor and stabilizer:

I = Inhibitor
S = Stabilizer

[ ] Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

Media	Half-life (specify units)
Groundwater	UK
Atmosphere	UK
Surface water	UK
Soil	UK

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

CAS No.	Name	Half-life (specify units)		Media
UK	UK	UK	in	UK
UK	UK	UK	in	UK
UK	UK	UK	in	UK
UK	UK	UK	in	UK

5.03 Specify the octanol-water partition coefficient, K_{ow} ... UK at 25°C

Method of calculation or determination ..... UK

5.04 Specify the soil-water partition coefficient, K_d ..... UK at 25°C

Soil type ..... UK

5.05 Specify the organic carbon-water partition coefficient, K_{oc} ..... UK at 25°C

5.06 Specify the Henry's Law Constant, H ..... UK atm-m^3/mole

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 6 ECONOMIC AND FINANCIAL INFORMATION

6.01 Company Type -- Circle the number which most appropriately describes your company.

CBI

[ ]

Corporation ..... (1)

Sole proprietorship 2

Partnership 3

Other (specify) _____ 4

6.02 At the end of the reporting year, were you constructing additional facilities at this site that were not yet in operation at the end of the reporting year, but which are now being used or will be used in the future for manufacturing, importing, or processing the listed substance? Circle the appropriate response.

CBI

[ ] Yes 1

No ..... (2)

6.03 List all of the product types that you manufacture that contain the listed substance as a raw material, and the percentage of the name-plate capacity dedicated to the listed substance that each product type represents. The total of all capacity percentiles should equal 100 percent. State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance.

CBI

[ ]

Product Type	% Total Capacity
No products contain listed substance	N/A

State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance: N/A kg/yr

[ ] Mark (X) this box if you attach a continuation sheet.

6.06 CBI [ ] State your average total and variable costs of manufacturing, importing, and processing the listed substance during the reporting year. (For an explanation of these costs, refer to the instructions.)

Average Total Costs

Manufacturing	NA	$/kg
Importing	NA	$/kg
Processing	Listed Substance is a small % of Mixture NA	$/kg

Average Variable Costs

Manufacturing	NA	$/kg
Importing	NA	$/kg
Processing	Listed Substance is a small % of Mixture NA	$/kg

6.07 State your average purchase price of the listed substance, if purchased as a raw material during the reporting year.

CBI % of Mixture represented by the listed substance *

[ ] Average purchase price ..... 1.32 $/kg

6.08 CBI State your company's total sales and sales of the listed substance sold in bulk for the reporting year. No Material sold in bulk

[ ] Year ending ..... [ ][ ] (Mo.) [ ][ ] (Year) NA

Company's total sales ($) ..... NA

Sales of listed substance ($) ..... NA

[ ] Mark (X) this box if you attach a continuation sheet.

6.09 State your company's total sales and sales of the listed substance sold in bulk for the corporate fiscal year preceding the reporting year. (Refer to the instructions for question 6.08 for the methodology used to answer this question.)

CBI

[ ] No Bulk sales of listed material

Year ending ..... NA [ ][ ] Mo. [ ][ ] Year

Company's total sales ($) ..... NA

Sales of listed substance ($) ..... NA

6.10 State your company's total sales and sales of the listed substance sold in bulk for the 2 corporate fiscal years preceding the reporting year in descending order. (Refer to the instructions for question 6.08 for the methodology used to answer this question.)

CBI

[ ]

Year ending ..... NA [ ][ ] Mo. [ ][ ] Year

Company's total sales ($) ..... NA

Sales of listed substance ($) ..... NA

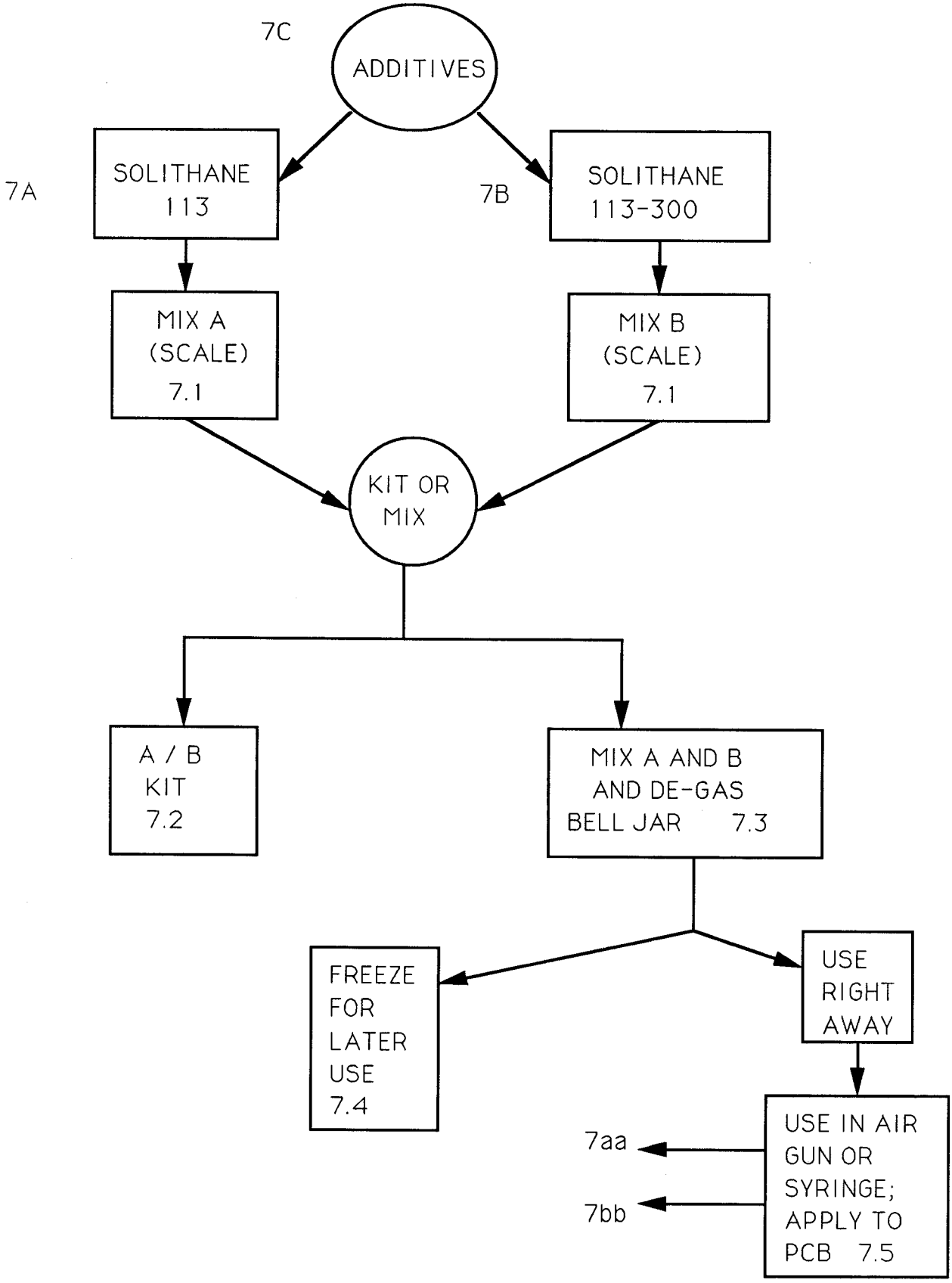
Year ending ..... [ ][ ] Mo. [ ][ ] Year NA

Company's total sales ($) ..... NA

Sales of listed substance ($) ..... NA

[ ] Mark (X) this box if you attach a continuation sheet.

PROCESS FLOW CHART FOR QUESTION 7.01



7.02 In accordance with the instructions, provide a separate process block flow diagram showing each of the three major (greatest volume) process types involving the listed substance.

CBI

[ ] Process type ..... Spacecraft urethane coating mixture

[X] Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... Urethane coating mixture

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
01	Bell Jar	10-30	559*	Glass
02	syringe/air gun	amb.	amb.	plastic
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

*measured pressure draw of pump

[ ] Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

[ ] Process type ..... Urethane spacecraft coating material

a. Process Stream ID Code	b. Known Compounds[1]	c. Concentrations[2,3] (% or ppm)	d. Other Expected Compounds	e. Estimated Concentrations (% or ppm)
A	Solithane 113 *	10-50 EW	N/A	NA
	Solithane 113-300 **	10-50 EW	NA	NA
	Additive package	0-80 EW	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA

7.06 continued below

* contains 6-7% Listed Substance

** contains no listed substance

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 8 RESIDUAL TREATMENT GENERATION, CHARACTERIZATION, TRANSPORTATION, AND MANAGEMENT

General Instructions:

For questions 8.04-8.06, provide a separate response for each residual treatment block flow diagram provided in question 8.01, 8.02 or 8.03. Identify the process type from which the information is extracted.

For questions 8.05-8.33, the Stream Identification Codes are those process streams listed in either the Section 7 or Section 8 block flow diagrams which contain residuals for each applicable waste management method.

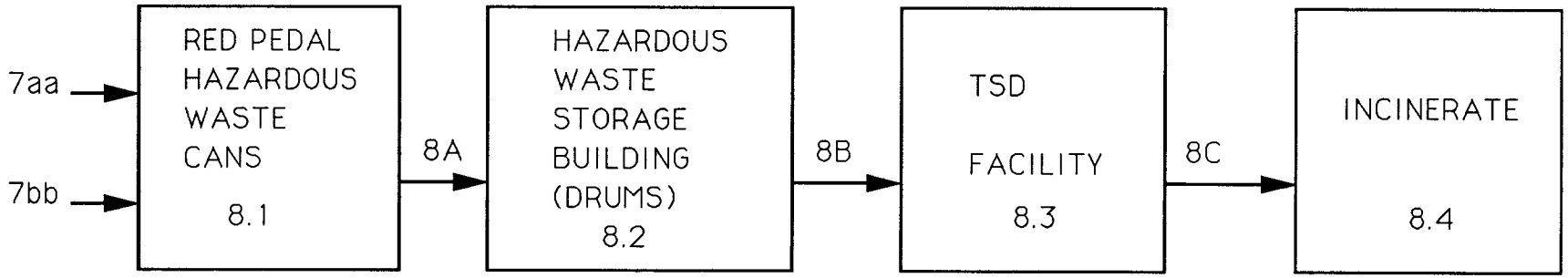
For questions 8.07-8.33, if residuals are combined before they are handled, list those Stream Identification Codes on the same line.

Questions 8.09-8.33 refer to the waste management activities involving the residuals identified in either the Section 7 or Section 8 block flow diagrams. Not all Stream Identification Codes used in the sample answers (e.g., for the incinerator questions) have corresponding process streams identified in the block flow diagram(s). These Stream Identification codes are for illustrative purposes only.

For questions 8.11-8.33, if you have provided the information requested on one of the EPA Office of Solid Waste surveys listed below within the three years prior to your reporting year, you may submit a copy or reasonable facsimile in lieu of answering those questions which the survey addresses. The applicable surveys are: (1) Hazardous Waste Treatment, Storage, Disposal, and Recycling Survey; (2) Hazardous Waste Generator Survey; or (3) Subtitle D Industrial Facility Mail Survey.

[ ] Mark (X) this box if you attach a continuation sheet.

FLOW CHART FOR QUESTION 8.01



8.02 In accordance with the instructions, provide residual treatment block flow diagram(s) which describe each of the treatment processes used for residuals identified in question 7.02.

CBI

[ ] Process type ..... See question and diagram 8.03

[X] Mark (X) this box if you attach a continuation sheet.

8.04 Describe the typical equipment types for each unit operation identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... No on-site treatment of residual materials generated in this process

Unit Operation ID Number (as assigned in questions 8.01, 8.02, or 8.03)	Typical Equipment Type
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

[1]Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

[2]Use the following codes to designate the physical state of the residual:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

[ ] Mark (X) this box if you attach a continuation sheet.

(continued)

8.05

[1]For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each componen Assign an additive package number to each additive package and list this number i column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1	Silicon Dioxide	8.0 EW
	Dibutyltindilaurate	1.0 EW
	Aminocoumarin	.3 EW
	Blue epoxy dispersion	.7 EW
2	Dibutyltindilaurate	.25 EW
	Carbon	1.0 EW
3	Dibutyltindilaurate	1.0 EW
	Toluene	18 EW
	1,1,1nitrilotri 2 propanol	1.2 EW
	Aluminum oxide	40 EW
4		
	Aluminum oxide	38% EW

[2]Use the following codes to designate how the concentration was determined:

A = Analytical result
E = Engineering judgement/calculation

[3]Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

[ ] Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

[5]Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

[6]Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

NA

Code	Method	Detection Limit (± ug/l)
1	NA	NA
2	NA	NA
3	NA	NA
4	NA	NA
5	NA	NA
6	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

8.06 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

[ ] Process type ..... urethane spacecraft coating material

a. Stream ID Code	b. Waste Description Code[1]	c. Management Method Code[2]	d. Residual Quantities (kg/yr)	e. Management of Residual (%) On-Site	e. Management of Residual (%) Off-Site	f. Costs for Off-Site Management (per kg)	g. Changes in Management Methods
7aa	B82	2I	47.6	0	100	$2.20	none
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
7bb	B82	2I	<1	0	100	$2.20	none
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA

[1]Use the codes provided in Exhibit 8-1 to designate the waste descriptions

[2]Use the codes provided in Exhibit 8-2 to designate the management methods

[ ] Mark (X) this box if you attach a continuation sheet.

EXHIBIT 8-1.
(Refers to question 8.06(b))

WASTE DESCRIPTION CODES

These waste description codes were developed specifically for this survey to supplement the descriptions listed with the RCRA and other waste codes. (These waste description codes are not regulatory definitions.)

WASTE DESCRIPTION CODES FOR HAZARDOUS WASTE DESCRIBED BY A SINGLE RCRA F, K, P, OR U WASTE CODE

A01 Spent solvent (F001-F005, K086)
A02 Other organic liquid (F001-F005, K086)
A03 Still bottom (F001-F005, K086)
A04 Other organic sludge (F001-F005, K086)
A05 Wastewater or aqueous mixture
A06 Contaminated soil or cleanup residue
A07 Other F or K waste, exactly as described*
A08 Concentrated off-spec or discarded product
A09 Empty containers
A10 Incinerator ash
A11 Solidified treatment residue
A12 Other treatment residue (specify in "Facility Notes")
A13 Other untreated waste (specify in "Facility Notes")

*"Exactly as described" means that the waste matches the description of the RCRA waste code.

INORGANIC LIQUIDS—Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content.

B01 Aqueous waste with low solvents
B02 Aqueous waste with low other toxic organics
B03 Spent acid with metals
B04 Spent acid without metals
B05 Acidic aqueous waste
B06 Caustic solution with metals but no cyanides
B07 Caustic solution with metals and cyanides
B08 Caustic solution with cyanides but no metals
B09 Spent caustic
B10 Caustic aqueous waste
B11 Aqueous waste with reactive sulfides
B12 Aqueous waste with other reactives (e.g., explosives)
B13 Other aqueous waste with high dissolved solids
B14 Other aqueous waste with low dissolved solids
B15 Scrubber water
B16 Leachate
B17 Waste liquid mercury
B18 Other inorganic liquid (specify in "Facility Notes")

INORGANIC SLUDGES—Waste that is primarily inorganic, with moderate-to-high water content and low organic content; pumpable.

B19 Lime sludge without metals
B20 Lime sludge with metals/metal hydroxide sludge
B21 Wastewater treatment sludge with toxic organics
B22 Other wastewater treatment sludge
B23 Untreated plating sludge without cyanides
B24 Untreated plating sludge with cyanides
B25 Other sludge with cyanides
B26 Sludge with reactive sulfides
B27 Sludge with other reactives
B28 Degreasing sludge with metal scale or filings
B29 Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)
B30 Sediment or lagoon dragout contaminated with organics
B31 Sediment or lagoon dragout contaminated with inorganics only
B32 Drilling mud
B33 Asbestos slurry or sludge
B34 Chloride or other brine sludge
B35 Other inorganic sludge (specify in "Facility Notes")

INORGANIC SOLIDS—Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.

B36 Soil contaminated with organics
B37 Soil contaminated with inorganics only
B38 Ash, slag, or other residue from incineration of wastes
B39 Other "dry" ash, slag, or thermal residue
B40 "Dry" lime or metal hydroxide solids chemically "fixed"
B41 "Dry" lime or metal hydroxide solids not "fixed"
B42 Metal scale, filings, or scrap
B43 Empty or crushed metal drums or containers
B44 Batteries or battery parts, casings, cores
B45 Spent solid filters or adsorbents
B46 Asbestos solids and debris
B47 Metal-cyanide salts/chemicals
B48 Reactive cyanide salts/chemicals
B49 Reactive sulfide salts/chemicals
B50 Other reactive salts/chemicals
B51 Other metal salts/chemicals
B52 Other waste inorganic chemicals
B53 Lab packs of old chemicals only
B54 Lab packs of debris only
B55 Mixed lab packs
B56 Other inorganic solids (specify in "Facility Notes")

INORGANIC GASES—Waste that is primarily inorganic with a low organic content and is a gas at atmospheric pressure.

B57 Inorganic gases

ORGANIC LIQUIDS—Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content.

B58 Concentrated solvent-water solution
B59 Halogenated (e.g., chlorinated) solvent
B60 Nonhalogenated solvent
B61 Halogenated/nonhalogenated solvent mixture
B62 Oil-water emulsion or mixture
B63 Waste oil
B64 Concentrated aqueous solution of other organics
B65 Concentrated phenolics
B66 Organic paint, ink, lacquer, or varnish
B67 Adhesives or epoxies
B68 Paint thinner or petroleum distillates
B69 Reactive or polymerizable organic liquid
B70 Other organic liquid (specify in "Facility Notes")

ORGANIC SLUDGES—Waste that is primarily organic, with low-to-moderate inorganic solids content and water content; pumpable.

B71 Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
B72 Still bottoms of nonhalogenated solvents or other organic liquids
B73 Oily sludge
B74 Organic paint or ink sludge
B75 Reactive or polymerizable organics
B76 Resins, tars, or tarry sludge
B77 Biological treatment sludge
B78 Sewage or other untreated biological sludge
B79 Other organic sludge (specify in "Facility Notes")

ORGANIC SOLIDS—Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable.

B80 Halogenated pesticide solid
B81 Nonhalogenated pesticide solid
B82 Solid resins or polymerized organics
B83 Spent carbon
B84 Reactive organic solid
B85 Empty fiber or plastic containers
B86 Lab packs of old chemicals only
B87 Lab packs of debris only
B88 Mixed lab packs
B89 Other halogenated organic solid
B90 Other nonhalogenated organic solid

ORGANIC GASES—Waste that is primarily organic with low-to-moderate inorganic content and is a gas at atmospheric pressure.

B91 Organic gases

EXHIBIT 8-2. (continued)

MANAGEMENT METHODS

17WT Ferrous sulfate
18WT Other chromium reduction

Complexed metals treatment (other than chemical precipitation by pH adjustment)
19WT Complexed metals treatment

Emulsion breaking
20WT Thermal
21WT Chemical
22WT Other emulsion breaking

Adsorption
23WT Carbon adsorption
24WT Ion exchange
25WT Resin adsorption
26WT Other adsorption

Stripping
27WT Air stripping
28WT Steam stripping
29WT Other stripping

Evaporation
30WT Thermal
31WT Solar
32WT Vapor recompression
33WT Other evaporation

Filtration
34WT Diatomaceous earth
35WT Sand
36WT Multimedia
37WT Other filtration

Sludge devatering
38WT Gravity thickening
39WT Vacuum filtration
40WT Pressure filtration (belt, plate and frame, or leaf)
41WT Centrifuge
42WT Other sludge devatering

Air flotation
43WT Dissolved air flotation
44WT Partial aeration
45WT Air dispersion
46WT Other air flotation

Oil skimming
47WT Gravity separation
48WT Coalescing plate separation
49WT Other oil skimming

Other liquid phase separation
50WT Decanting
51WT Other liquid phase separation

Biological treatment
52WT Activated sludge
53WT Fixed film-trickling filter
54WT Fixed film-rotating contactor
55WT Lagoon or basin, aerated
56WT Lagoon, facultative
57WT Anaerobic
58WT Other biological treatment

Other wastewater treatment
59WT Wet air oxidation
60WT Neutralization
61WT Nitrification
62WT Denitrification
63WT Flocculation and/or coagulation
64WT Settling (clarification)
65WT Reverse osmosis
66WT Other wastewater treatment

OTHER WASTE TREATMENT

1TR Other treatment
2TR Other recovery for reuse

ACCUMULATION

1A Containers
2A Tanks

STORAGE

1ST Container (i.e., barrel, drum)
2ST Tank
3ST Waste pile
4ST Surface impoundment
5ST Other storage

DISPOSAL

1D Landfill
2D Land treatment
3D Surface impoundment (to be closed as a landfill)
4D Underground injection well

---

[1]Chemical precipitation is a treatment operation whereby the pH of a waste is adjusted to the range necessary for removal (precipitation) of contaminants. However, if the pH is adjusted solely to achieve a neutral pH, THE OPERATION SHOULD BE CONSIDERED NEUTRALIZATION (60WT).

8.09 Identify each off-site facility (including POTWs) that manages the residuals identified in your process block or residual treatment block flow diagram(s), and the quantity that each managed during the reporting year. Photocopy this question and complete it separately for each off-site facility.

CBI

[ ]

Stream ID Code	Annual Quantity (kg)
aa	less than 1
bb	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA

Facility Name [A][D][V][A][N][C][E][D][ ][E][N][V][I][R][O][N][M][E][N][T][A][L][ ]

Address [1][ ][E][D][E][N][ ][L][A][N][E][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
Street

[F][L][A][N][D][E][R][S][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
City

[N][J] [0][7][8][3][6]--[ ][ ][ ][ ]
State Zip Code

EPA Identification Number (i.e., Hazardous Waste Facility ID Number) ..... [N][J][D][9][8][0][5][3][6][5][9][3]

[ ] Mark (X) this box if you attach a continuation sheet.

8.11 On-Site Storage or Treatment in Piles -- Complete this table for the five largest (by volume) piles that are used on-site to store or treat the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Pile	Quantity Managed per Year (cubic meters)	Under Roofed Structure (Y/N)	Type of Containment Provided[1]	Synthetic Liner Base (Y/N)[2]	Frequency of Transfer and/or Handling Operations[3]	Stream ID Code
1	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[1]Use the following codes to designate the type of containment provided:

C = Complete (includes both dike containment and underground (leachate) containment)
P1 = Partial-1 (includes just dike containment)
P2 = Partial-2 (includes just underground (leachate) containment)
N = None

[2]Waste may lie directly on the synthetic liner or the liner may be covered with a clay layer

[3]Use the following codes to designate frequency of transfer and/or handling operations:

A = Daily
B = Weekly
C = Monthly
D = Other (specify) NA

[ ] Mark (X) this box if you attach a continuation sheet.

8.13 On-Site Storage, Treatment, or Disposal in Containers -- Complete the following table for the five largest (by volume) types of free standing containers that are used on-site to store, treat, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Container	Design Capacity (liters)	Quantity Stored per Year (liters)	Treatment Types[1]	Average Length of Storage (days)	Average Daily Stored Quantity (liters)	Maximum Operational Storage Capacity (liters)	Storage Base Material[2]	Stream ID Code
1	1-2	1-2	S	90	1	3	a	aa
2	NA	NA	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[1]Indicate "S" for storage and use the codes provided in Exhibit 8-3 to designate treatment types

If residual is stored, indicate (Y/N) in parenthesis whether the storage area is designed and operated to collect and contain surface runoff

[2]Use the following codes to designate storage base materials:

A = Concrete
B = Asphalt
C = Soil
D = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet

8.14 On-Site Burning in Boilers -- Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ] NA

Boiler	Boiler Type[1]	Average Boiler Load[2] (%)	Average Fuel Replacement Ratio[3] (%)	Stream ID Code
1	NA	NA	NA	NA
2	NA	NA	NA	NA
3	NA	NA	NA	NA
4	NA	NA	NA	NA
5	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

---

[1]Use the following codes to designate boiler type:

F = Fire tube
W = Water tube

[2]Designate the average boiler load when firing residual (percent of capacity)

[3]Designate the average fuel replacement ratio as a percentage (heat-input basis)

[ ] Mark (X) this box if you attach a continuation sheet.

8.16 Provide the following information for the residuals identified in your process block or residual treatment block flow diagram(s) that are burned in on-site boilers. Photocopy this question and complete it separately for each boiler.

CBI

[ ] Boiler number ..... NA

Stream ID code(s) ..... NA

	Residual, as Fired (or residual mixture if residuals are blended)	Boiler Fuel, as Fired (residual(s) plus primary fuel)
Btu content (J/kg)		
Average	NA	NA
Minimum	NA	NA
Total halogen content (% by wt.)		
Average	NA	NA
Maximum	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[ ] Mark (X) this box if you attach a continuation sheet.

8.18 Complete the following table for the five largest (by capacity) boilers that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Boiler	Air Pollution Control Device[1]	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA
4	NA	NA
5	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

---

[1]Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)
E = Electrostatic precipitator
O = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

8.20 On-Site Burning in Incinerators -- Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

NA

[ ]

Incinerator	Incinerator Type[1]	Primary Incinerator Fuel[2]	Average Fuel Replacement Ratio[3]	Stream ID Code
1	NA	NA	NA	NA
2	NA	NA	NA	NA
3	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

---

[1]Use the following codes to designate the incinerator type:

1I = Liquid injection
2I = Rotary or rocking kiln
3I = Rotary kiln with a liquid injection unit
4I = Two stage
5I = Fixed hearth
6I = Multiple hearth
7I = Fluidized bed
8I = Infrared
9I = Fume/vapor
10I = Pyrolytic destructor
11I = Other (specify) _____

[2]Use the following codes to designate the primary incinerator fuel:

A = Oil
B = Gas
C = Coal
D = Wood
E = Other (specify) _____

[3]Designate the percentage of auxiliary fuel used when firing residual (percent of capacity)

[ ] Mark (X) this box if you attach a continuation sheet.

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Incinerator	Air Pollution Control Device[1]	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[1]Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)
E = Electrostatic precipitator
O = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

8.25 Provide the following information on the incinerator feed for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each incinerator.

CBI

[ ] Incinerator number ..... NA

Stream ID code(s) ..... NA

	Residual, as Fired (or residual mixture if residuals are blended)	Incinerator Fuel, as Fired (residual(s) plus primary fuel)
Btu content (J/kg)		
Average	NA	NA
Minimum	NA	NA
Feed rate (kg/hr)	NA	NA
Feed rate (J/hr)(kg/hr x J/kg)	NA	NA
Total halogen content (% by weight)		
Average	NA	NA
Maximum	NA	NA
Total ash content (% by weight)		
Average	NA	NA
Maximum	NA	NA
Total water content (% by weight)		
Average	NA	NA
Maximum	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[ ] Mark (X) this box if you attach a continuation sheet.

8.27 On-Site Storage, Treatment or Disposal in a Land Treatment Site -- Complete the following table for each on-site land treatment site that is used to store, treat, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ] Total area actively used for land treatment ..... NA m^2

Average slope of site (degree incline) ..... NA

Surface water runoff management[1] ..... NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

---

[1]Use the following codes to describe the management practices for surface water runoff:

A = Collection prior to treatment
B = Reapplication to the site
C = Canalization prior to treatment
D = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

8.29 On-Site Storage, Treatment, or Disposal in Surface Impoundments -- Complete the following table for the five largest (by volume) surface impoundments that are used on-site to treat, store, or dispose of the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Impoundment	Total Capacity (liters)	Specify Storage, Disposal or Treatment Type if Applicable[1]	Average Residency Time (days)[2]	SYNTHETIC LINER		CLAY LINER		LEACHATE COLLECTION SYSTEM		Stream ID Code
				No. of Liners	Thickness (cm)[3]	No. of Liners	Thickness (cm)[3]	Installed (Y/N)	Leachate Collected (Y/N)	
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

[1]Indicate "S" for storage, "D" for disposal, or use the codes provided in Exhibit 8-3 (which follows question 8.13) to designate treatment type

[2]Indicate the residency time for the surface impoundment's flow through stream. In addition, indicate in parenthesis using the following codes the frequency with which the impoundment is dredged to clear the residue that collects on the bottom:

A = Daily
B = Weekly
C = Monthly
D = Other (specify) _____

[3]Indicate the thickness of each liner

[ ] Mark (X) this box if you attach a continuation sheet.

8.31 State the total area actively used on-site for your landfill.

CBI

[ ] Total area actively used ..... _____ m^2

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

8.32 Complete the following table for the five largest landfill cells (by volume) that contain residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Landfill Cell	WORKING COVER		CAP DESIGN CLAY LAYER		LEACHATE COLLECTION SYSTEM	
	Average Use [1]	Thickness (cm)	Installed (Y/N)	Thickness (cm)	Installed (Y/N)	Leachate Collected (Y/N)
1	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

---

[1] Use the following codes to designate the average use rate:

A = Daily
B = Weekly
C = Monthly
D = Other (specify) NA

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 9 WORKER EXPOSURE

General Instructions:

Questions 9.03-9.25 apply only to those processes and workers involved in manufacturing or processing the listed substance. Do not include workers involved in residual waste treatment unless they are involved in this treatment process on a regular basis (i.e., exclude maintenance workers, construction workers, etc.).

[ ] Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

[ ]

Data Element	Data are Maintained for: Hourly Workers	Salaried Workers	Year in Which Data Collection Began	Number of Years Records Are Maintained
Date of hire	X	X	1957	Medical indef Personnel 10
Age at hire	X	X	"	"
Work history of individual before employment at your facility	X	X	"	"
Sex	X	X	"	"
Race	X	X	"	"
Job titles	X	X	"	"
Start date for each job title	X	X	"	"
End date for each job title	X	X	"	"
Work area industrial hygiene monitoring data	X	X	1985	Indefinetly
Personal employee monitoring data	X	X	1985	"
Employee medical history	X	X	1957	"
Employee smoking history	X	X	1957	"
Accident history	X	X	1957	"
Retirement date	X	X	1957	"
Termination date	X	X	1957	"
Vital status of retirees	NA	NA	NA	NA
Cause of death data	NA	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

[ ]

a. Activity	b. Process Category	c. Yearly Quantity (kg)	d. Total Workers	e. Total Worker-Hours
Manufacture of the listed substance	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA
On-site use as reactant	Enclosed	NA	NA	NA
	Controlled Release	3.0	90	@750
	Open	NA	NA	NA
On-site use as nonreactant	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA
On-site preparation of products	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

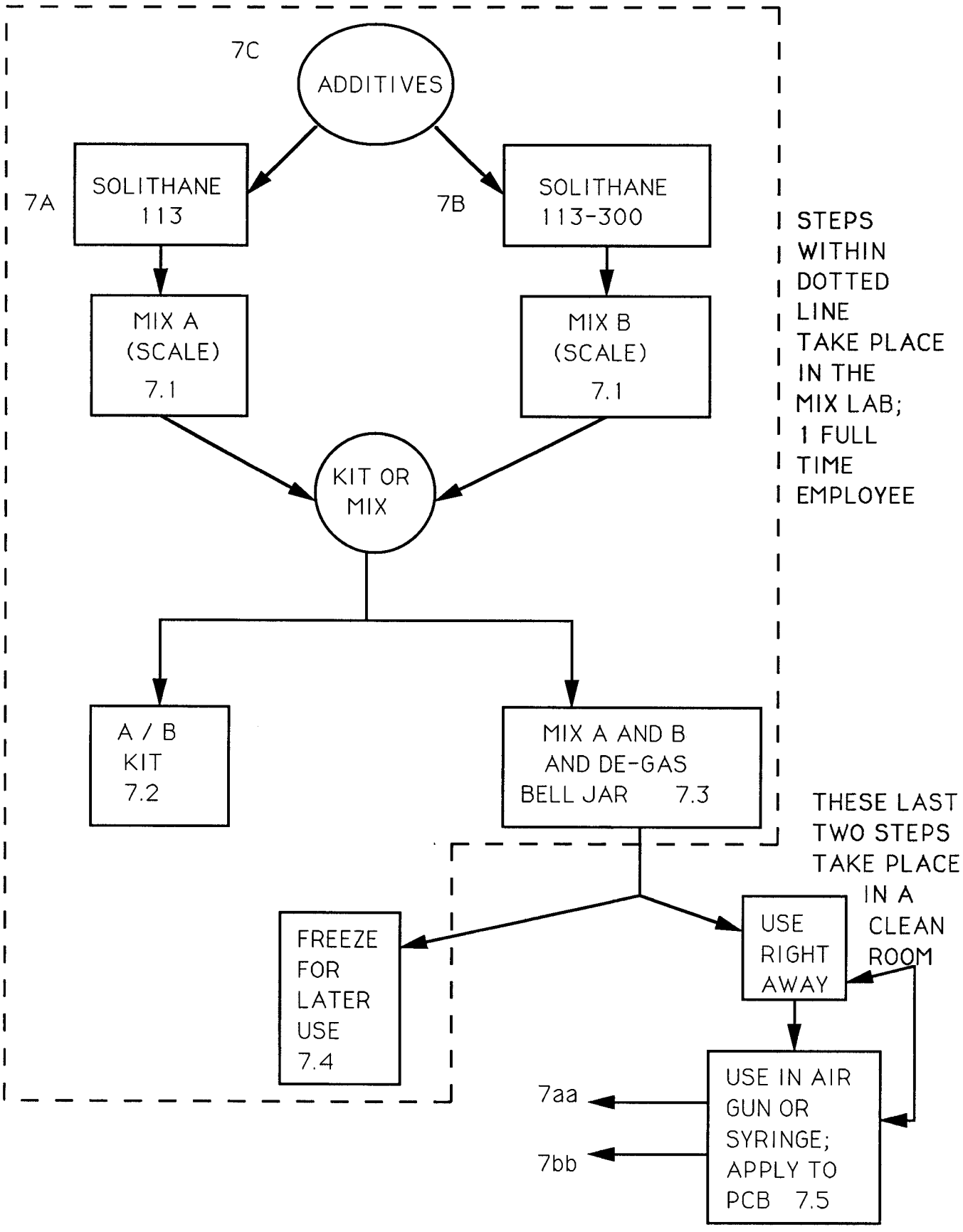
CBI

[ ] **Process type** ..... Spacecraft urethane coating mixture

Note this is exclusively a batch operation

☒ Mark (X) this box if you attach a continuation sheet.

PROCESS FLOW CHART FOR QUESTION 9.04



9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... Spacecraft urethane coating mixture

Work area ..... Mix Lab-Controlled clean area

*potential exposure to listed substance

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance[1]	Average Length of Exposure Per Day[2]	Number of Days per Year Exposed
1	1	Skin* Air	OL	B	250
2	90	skin Air	OL	A	250
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

[1]Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure; includes fumes, vapors, etc.)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

[2]Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
B = Greater than 15 minutes, but not exceeding 1 hour
C = Greater than one hour, but not exceeding 2 hours
D = Greater than 2 hours, but not exceeding 4 hours
E = Greater than 4 hours, but not exceeding 8 hours
F = Greater than 8 hours

[ ] Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

[ ]

NA No monitoring data available

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples[1]	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	NA	NA	NA	NA	NA	NA
General work area (air)	NA	NA	NA	NA	NA	NA
Wipe samples	NA	NA	NA	NA	NA	NA
Adhesive patches	NA	NA	NA	NA	NA	NA
Blood samples	NA	NA	NA	NA	NA	NA
Urine samples	NA	NA	NA	NA	NA	NA
Respiratory samples	NA	NA	NA	NA	NA	NA
Allergy tests	NA	NA	NA	NA	NA	NA
Other (specify) _____	NA	NA	NA	NA	NA	NA
Other (specify) _____	NA	NA	NA	NA	NA	NA
Other (specify) _____	NA	NA	NA	NA	NA	NA

[1]Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist
B = Insurance carrier
C = OSHA consultant
D = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

[ ]	Test Description	Frequency (weekly, monthly, yearly, etc.)
	blood work, urinalysis, annual physical exam	annually

[ ] Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] No Process changes have been made in these areas

Process type ..... NA

Work area ..... NA

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
NA	NA
NA	NA
NA	NA
NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

NA- No routine use of respirators in processes using the listed substance

[ ] Process type ..... _____

Work Area	Respirator Type	Average Usage[1]	Fit Tested (Y/N)	Type of Fit Test[2]	Frequency of Fit Tests (per year)
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

[1]Use the following codes to designate average usage:

A = Daily
B = Weekly
C = Monthly
D = Once a year
E = Other (specify) _____

[2]Use the following codes to designate the type of fit test:

QL = Qualitative
QT = Quantitative

[ ] Mark (X) this box if you attach a continuation sheet.

9.16 Respirator Maintenance Program -- For each type of respirator used when working with the listed substance, specify the frequency of the maintenance activity, and the person who performs the maintenance activity. Photocopy this question and complete it separately for each respirator type.

NA No routine use of respirators in these areas

Respirator type ..... _____

Respirator Maintenance Activity	Frequency[1]	Person Performing Activity[2]
Cleaning	NA	NA
Inspection	NA	NA
Replacement		
Cartridge/Canister	NA	NA
Respirator unit	NA	NA

[1]Use the following codes to designate the frequency of maintenance activity:

A = After each use
B = Weekly
C = Other (specify) _____

[2]Use the following codes to designate who performs the maintenance activity:

A = Plant industrial hygienist
B = Supervisor
C = Foreman
D = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

9.17 Respirator Training Program -- Describe your respirator training and re-training programs for each type of respirator used when working with the listed substance. Photocopy this question and complete it separately for each respirator type.

a.

Respirator type ..... NA No routine use of respirators in these areas

Type of Training[1]	Number of Workers Trained	Location of Training[2]	Length of Training (hrs)	Person Performing Training[3]	Frequency[4]
NA	NA	NA	NA	NA	NA

b.

Respirator type ..... NA

Type of Re-training[1]	Number of Workers Re-trained	Location of Re-Training[2]	Length of Re-Training (hrs)	Person Performing Re-Training[3]	Frequency[4]
NA	NA	NA	NA	NA	NA

[1]Use the following codes to designate the type of training or re-training:

E = Emergency
R = Routine

[2]Use the following codes to designate the location of training or re-training:

A = Outside plant instruction
B = In-house classroom instruction
C = On-the-job
D = Other (specify) _____

[3]Use the following codes to designate the person who performs the training or re-training:

A = Plant industrial hygienist
B = Supervisor
C = Foreman
D = Other (specify) _____

[4]Use the following codes to designate the frequency of respirator training or re-training:

A = Monthly
B = Fixed monthly
C = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 **Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.**

CBI

[ ]

Process type ..... Spacecraft urethane coating mixture

Work area .....

Employee training - Chemical training. Methods designed to eliminate and minimize any potential exposure - the listed substance is only used in very small quantities.

9.20 **Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.**

Process type ..... Spacecraft urethane coating mixture

Work area Due to extremely small quantities and methods there are no routine spills of these materials containing the listed substance

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping	NA	NA	NA	NA
Vacuuming	NA	NA	NA	NA
Water flushing of floors	NA	NA	NA	NA
Other (specify) Clean immediately at the time of any spill				

[ ] **Mark (X) this box if you attach a continuation sheet.**

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

(Yes) Part of our standard medical treatment plan ..... (1)

No 2

Emergency exposure

(Yes) Part of our Emergency Medical Response ..... (1)

No 2

If yes, where are copies of the plan maintained?

Routine exposure: Health office

Emergency exposure: Health office

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

(Yes) ..... (1)

No 2

If yes, where are copies of the plan maintained? Safety/ Plant Engineering

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

(Yes) ..... (1)

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist ..Livia Pontani.....

Insurance carrier .....NA.....

OSHA consultant .....

Other (specify) _____ .....

[ ] Mark (X) this box if you attach a continuation sheet.

9.24 Who is responsible for safety and health training at your facility? Circle the appropriate response.

Plant safety specialist ..... (1)

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

9.25 Who is responsible for the medical program at your facility? Circle the appropriate response.

Plant physician 1

Consulting physician ..... (2)

Plant nurse 3

Consulting nurse 4

Other (specify) Plant safety director 5

[ ] Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude ..... 74 ° 33 ' 38 "

Longitude ..... 40 ° 17 ' 28 "

UTM coordinates ..... Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information. N/A

Average annual precipitation ..... _____ inches/year

Predominant wind direction ..... _____

10.04 Indicate the depth to groundwater below your facility. N/A

Depth to groundwater ..... _____ meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of Y, N, and NA.)

CBI

[ ]

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	NA	NA	NA
Importing	NA	NA	NA
Processing	Y	NA	NA
Otherwise used	NA	NA	NA
Product or residual storage	NA	NA	NA
Disposal	NA	NA	NA
Transport	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

10.07 Complete the following table for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

[ ]

Process type ..... _____

N/A

Process Stream ID Code	Media Affected[1]	Average Amount of Listed Substance Released[2]	Number of Batches/Year	Days of Operation/ Year

[1]Use the following codes to designate the media affected:

A = Air
B = Land
C = Groundwater
D = POTW
E = Navigable waterway
F = Non-navigable waterway
G = Other (specify) _____

[2]Specify the average amount of listed substance released to the environment and use the following codes to designate the units used to measure the release:

A = kg/day
B = kg/batch

[ ] Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI
[ ]

Process type ..... space craft urethane coating mixture

Point Source ID Code	Description of Emission Point Source
01	Bell Jar
02	application from air gun/syringe
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

[ ]

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m)[1]	Building Width(m)[2]	Vent Type[3]
01	4.2	.3	22	.12	4.5	125	H
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA

[1]Height of attached or adjacent building

[2]Width of attached or adjacent building

[3]Use the following codes to designate vent type:

H = Horizontal
V = Vertical

[ ] Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... Spacecraft urethane coating mixture

Percentage of time per year that the listed substance is exposed to this process type ..... 1.0 %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					
	Less than 5%	5-10%	11-25%	26-75%	76-99%	Greater than 99%
Pump seals[1]						
Packed	NA	NA	NA	NA	NA	NA
Mechanical	X	NA	NA	NA	NA	NA
Double mechanical[2]	NA	NA	NA	NA	NA	NA
Compressor seals[1]	NA	NA	NA	NA	NA	NA
Flanges	NA	NA	NA	NA	NA	NA
Valves						
Gas[3]	NA	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA	NA
Pressure relief devices[4] (Gas or vapor only)	NA	NA	NA	NA	NA	NA
Sample connections						
Gas	NA	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA	NA
Open-ended lines[5] (e.g., purge, vent)						
Gas	NA	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA	NA

[1]List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

[ ] Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... _____

Equipment Type	Leak Detection Concentration (ppm or mg/m^3) Measured at ___ Inches from Source	Detection Device[1]	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
Pump seals					
Packed	NA	NA	NA	NA	NA
Mechanical	NA	NA	NA	NA	NA
Double mechanical	NA	NA	NA	NA	NA
Compressor seals	NA	NA	NA	NA	NA
Flanges	NA	NA	NA	NA	NA
Valves					
Gas	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA
Pressure relief devices (gas or vapor only)	NA	NA	NA	NA	NA
Sample connections					
Gas	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA
Open-ended lines					
Gas	NA	NA	NA	NA	NA
Liquid	NA	NA	NA	NA	NA

[1]Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer
FPM = Fixed point monitoring
O = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

PART D RELEASE TO WATER

10.17 National Pollutant Discharge Elimination System (NPDES) Discharges -- Complete the following information for each body of water NPDES discharges are discharged into. If discharges are to more than one body of water, photocopy this question and complete it separately for each discharge.

CBI

[ ] Discharge source (stream ID code) NJ0002534

Is discharge to a moving or standing body of water? Circle the appropriate response.

Moving body of water ..... (1)

Standing body of water 2

Estimated average base flow (moving)	UK	l/day
Estimated average volume (standing)	UK	l
Average volume of discharge from facility	321,725	l/day
	365	days/year
Maximum volume of discharge from facility	492,050	l/day
	uk	days/year
Average concentration of listed substance in discharge	0 *	mg/l or ppm
Maximum concentration of listed substance in discharge	0 *	mg/l or ppm

10.18 Publicly Owned Treatment Works (POTW) -- Complete the following information for discharges containing the listed substance which are discharged to a POTW from your facility.

CBI

[ ] Discharge source (stream ID code) ..... NA

Average volume of discharge from facility	@378500	l/day
	UK	days/year
Maximum volume of discharge from facility	@529,900	l/day
	UK	days/year
Average concentration of listed substance in discharge	0*	mg/l or ppm
Maximum concentration of listed substance in discharge	0*	mg/l or ppm

* there is no known release of listed substance in these streams

[ ] Mark (X) this box if you attach a continuation sheet.

10.20 Releases to Soils -- Complete the following information for up to three random soil core samples that were taken and analyzed for the listed substance during the reporting year. Report the concentrations of the listed substance determined by soil core monitoring studies/tests. Specify the distance from the facility that soil cores were taken, and indicate the soil type and sample depth of the soil cores. (Refer to the glossary for definitions of soil textures given in foo note 2.)

CBI

[ ]

NA no soil samples have been analyzed for the listed substance

Sample	Concentration (ug/kg) of Listed Substance (± % precision)	Distance from Plant (m)[1]	Soil Texture[2]	Sample Depth (cm)
1	UK /NA	UK/NA	UK/NA	UK/NA
2	NA/UK	NA/UK	NA/UK	NA/UK
3	NA/UK	NA/UK	NA/UK	NA/UK

[1]Use the following code to designate if the sample was taken within the facility's boundary:

OS = On-site

[2]Use the following codes to designate soil texture:

A = Sand
B = Loamy sand
C = Sandy loam
D = Loam
E = Silty loam
F = Silt
G = Sandy clay loam
H = Clay loam
I = Silty clay loam
J = Sandy clay
K = Silty clay
L = Clay

10.21 Releases to Groundwater -- Complete the following information for up to three random samples of groundwater from monitoring wells during the reporting year that were analyzed for the listed substance. The average and maximum concentration refers to the listed substance.

CBI

[ ]

NA/ no samples taken

Sample	Distance from Plant (m)[1]	Well Depth (m)	Average Concentration (mg/l) (± % precision)	Maximum Concentration (mg/l) (± % precision)
1	UK/NA	UK/NA	UK/NA	Uk/NA
2	Uk/NA	Uk/NA	UK/NA	UK/NA
3	UK/NA	UK/NA	UK/NA	UK/NA

[1]Use the following code to designate if the sample was taken within the facility's boundary:

OS = On-site

[ ] Mark (X) this box if you attach a continuation sheet.

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

No nonroutine releases of this compound

Release	Date Started	Time (am/pm)	Date Stopped	Time (am/pm)
1	NA	NA	NA	NA
2	NA	NA	NA	NA
3	NA	NA	NA	NA
4				
5				
6				

10.24 Specify the weather conditions at the time of each release.

Release	Wind Speed (km/hr)	Wind Direction	Humidity (%)	Temperature (°C)	Precipitation (Y/N)
1	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA
6	NA	NA	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

10.27 Circle all appropriate responses relating to the cause and the effects of the release.

Release No. ..... NA

Cause of Release

Equipment failure	NA	1
Operator error	NA	2
Bypass condition	NA	3
Upset condition	NA	4
Fire	NA	5
Unknown	NA	6
Other (specify) _____	NA	7

Results of Release

Spill	NA	1
Vapor release	NA	2
Explosion	NA	3
Fire	NA	4
Other (specify) _____	NA	5

[ ] Mark (X) this box if you attach a continuation sheet.

10.28 (continued)

c. Local NO_NONROUTINE RELEASES

Agency [_]

Office [_]

Contact Person [_]

Address [_]
Street

[_]
City

[_][_]
State

Telephone Number .... [_][_][_]-[_][_][_]-[_][_][_][_]

Date Notified .... [_][_] [_][_] [_][_]
Mo. Day Year

Time Notified .... [_][_][_][_] am/pm

10.29 For each of the proximities listed below, indicate whether the population living within that proximity was notified of, or evacuated because of the release. Specify who notified the population, the number of people evacuated, if any, and the date and time of day the evacuation began.

Release No. .... ______

Proximity to the Release	Notified of Release (Y/N)	Notifying Person	Notifying Person's Telephone Number	Area Evacuated (Y/N)	Number of Persons Evacuated	Date and Time of Day Evacuation Began
1/4 mile						
1/2 mile						
1 mile						
Other (specify)						

[_] Mark (X) this box if you attach a continuation sheet.

10.33 Indicate which of the prevention practices and policies listed in question 10.32 were ineffective in preventing the release from reaching the environment.

Release No. ..... NO NON-ROUTINE RELEASES ..... _____

10.34 Describe all repairs and/or preventive measures (management practices, operational changes, etc.) made to equipment or operations as a result of the release.

Release No. ..... _____

10.35 Describe additional preventive measures that will be taken to minimize the possibilities of recurrence.

Release No. ..... _____

[ ] Mark (X) this box if you attach a continuation sheet.

MORTON THIOKOL INC.
Morton Chemical Division

Material Safety Data Sheet

SECTION I: PRODUCT IDENTIFICATION

PRODUCT NAME:	S-113
CHEMICAL NAME:	Isocyanate Terminated Polyol
COMMON NAME:	Isocyanate Terminated Polyol
CAS NUMBER:	None
PRODUCT USE:	Coatings and Castings
EMERGENCY PHONE:	815-338-1800 (24 hours/day)
OTHER EMERGENCY PHONE:	312-807-3142
EFFECTIVE DATE:	December, 1987
SUPERSEDES:	October 15, 1986

SECTION II: HAZARDOUS INGREDIENTS

			OSHA	ACGIH/TLV	
CHEMICAL NAME/COMMON NAME	CAS NO.	% 1	PEL 2	TWA	STEL
Toluene Diisocyanate TDI	584-84-9	6-7	0.02ppm	0.005ppm	0.02ppm

1 Typical amount, not a specification
2 Governed by a ceiling limit value (c) - The value which should not be exceeded even instantaneously.

SECTION III: PHYSICAL DATA

BOILING POINT (760 mm Hg):	482 degrees F (250 degrees C)
SPECIFIC GRAVITY (Water = 1):	1.073
VAPOR PRESSURE (mm Hg):	Not applicable
VAPOR DENSITY (Air=1):	> 6
% NONVOLATILE:	93
pH:	Not applicable
EVAPORATION RATE (Ether=1):	< 1
SOLUBILITY IN WATER:	Not applicable
APPEARANCE:	Pale Yellow
ODOR:	Irritating Pungent Odor

SECTION IV: FIRE AND EXPLOSION DATA

FLASH POINT: > 200 degrees F (> 94 degrees C) FLAMMABLE LIMITS Lel: Not Applicable Uel: Not Applicable
METHOD USED: SETAFLASH
EXTINGUISHING MEDIA: Foam, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: Fire fighters should wear NIOSH/MSHA approved self-contained positive pressure breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None as far as known.
HAZARDOUS DECOMPOSITION PRODUCTS: If burned, gives off carbon monoxide, carbon dioxide, nitrogen oxides, aromatic amines, aldehydes, and hydrogen cyanide.

ORAL TOXICITY: Unknown for product mixture. Animal experiments indicate that the toxic effects of TDI or polymeric isocyanates, when ingested, are slight. The LD50 in rats for TDI is 5840mg/Kg. From these experiments, it is believed that ingestion of TDI or polymeric isocyanates would not be fatal to humans, but could result in irritation and corrosive action on the mouth and stomach tissue. See 3

DERMAL TOXICITY: Unknown for product mixture. Isocyanates react with skin protein and tissue moisture. If not promptly removed, liquid spills on the skin can cause reddening, swelling, and blistering of exposed skin. REPEATED SKIN CONTACT HAS CAUSED SKIN SENSITIZATION IN HUMANS AND SHOULD BE AVOIDED.

TDI: Skin-Rabbit: 500 mg/24H MOD See Note 3

EYE TOXICITY: Unknown for product mixture. EYE CONTACT - LIQUID ISOCYANATES SPLASHED INTO THE EYES CAN BE HARMFUL TO THE DELICATE EYE TISSUE AND MUST BE AVOIDED. Injury results from reaction of the isocyanate with the eye fluid which may dehydrate the tissue and result in severe irritation of the eyelid and possible damage to the cornea (corneal opacity). Exposure to high concentrations of isocyanate vapor can lead to formation of solid crystals in the eye fluid causing mechanical irritation of the eyes hours after exposure.

TDI Eye-Rabbit: 100 mg SEV See Note 3

INHALATION TOXICITY: Unknown for product mixture. Inhalation of isocyanate vapors can produce severe irritation of the mucous membranes in the respiratory tract, i.e. nose, throat, and lungs. Exposure of humans to concentrations of isocyanate vapor in excess of the maximum acceptable concentration has caused illness characterized by breathlessness, chest discomfort and reduced pulmonary function. Massive exposure to high concentrations has caused, within minutes, irritation of the trachea and larynx and severe coughing spasms. Massive exposure may also lead to bronchitis, bronchial spasm, and/or pulmonary edema (chemical pheumonitis). Concentrations of isocyanate vapors should be maintained below the TLV by engineering controls. Can cause sensitization in humans.

TDI Inhalation-Human TCLO: 0.02 ppm/2Y:PUL See Note 3

TDI Inhalation-Human TCLO: 0.5 ppm:IRR See Note 3

CHRONIC TOXICITY: Unknown for product mixture. Toluene Diisocyanate (TDI) is considered a suspect carcinogen as tested by National Toxicology Program, 1983, in rats and female mice. Administered by gavage to rats, TDI caused subcutaneous neoplasms or cancers in both sexes. Additionally, males developed pancreatic neoplasms and females pancreatic, liver and mammary neoplasms. In mice similarly exposed, TDI caused circulatory neoplasms and cancers (combined) and liver neoplasms in females but was not carcinogenic to males. (NTP 1983 Program Tech Report on Carcinogenic Study of Commercial Grade of TDI.)

EFFECTS OF OVEREXPOSURE:

INGESTION:	Not established for product mixture. Possible nausea, vomiting, and gastrointestinal pain.
SKIN CONTACT:	Not established for product mixture. May cause irritation, dermatitis and possible skin sensitization given prolonged or repeated skin contact.

3 R.T.E.C.S. 1981-82 CZ6300000

EYE CONTACT:	Not established for product mixture. Possible irritation, tearing, reddening and blurred vision.
INHALATION:	Not established for product mixture. Possible respiratory tract, mucous membrane irritation, sensitization. Symptoms may be delayed and could include dry cough, chest tightness, wheezing, shortness of breath, asthmatic type symptoms.
ACUTE SYSTEMIC:	Overexposure may cause irritation of the eyes, nose and throat. Severe overexposure may cause weakness, drowsiness, and unconsciousness.
CHRONIC SYSTEMIC:	Signs and symptoms from chronic exposure resemble those from acute mishaps but are in part systemically more severe. Extended exposure to isocyanates can cause sensitization resulting in asthmatic type symptoms.

NOTES: Toxicity testing on the product mixture has not been conducted. Comments listed in HEALTH HAZARD DATA pertain to the isocyanate listed in HAZARDOUS INGREDIENTS.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE: Persons with preexisting skin disorders may be more susceptible to isocyanate. In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of isocyanate vapors may cause exacerbation of symptoms due to irritant properties of the isocyanate.

SECTION VI: EMERGENCY HEALTH AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with water for 15 minutes lifting the upper and lower eyelids occasionally and obtain immediate medical attention.

SKIN CONTACT: Remove contaminated clothing. Wash exposed areas thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. If irritation is present after washing, get medical attention.

INHALATION: Move to an area with fresh air and free from risk of further exposure. Administer artificial respiration as required. Obtain medical attention.

INGESTION: Do not induce vomiting. Obtain immediate medical attention. If unavailable, contact nearest Poison Control Center.

NOTE TO PHYSICIAN: May cause weakness, drowsiness, unconsciousness, irritation of eyes, nose and throat, nausea, possible sensitization, coughing, tightness of chest (TDI). No known antidote. Supportive therapy is recommended. Careful lavage may be indicted after ingestion.

SECTION VII: REACTIVITY DATA

STABILITY: Stable under ordinary storage conditions.

HAZARDOUS CONDITIONS TO AVOID: Storage at temperatures above 110 degrees F (43 degrees C) and moisture contact.

INCOMPATIBILITY: (MATERIALS TO AVOID) Oxidizing substances.

CAN HAZARDOUS POLYMERIZATION OCCUR: No.

HAZARDOUS DECOMPOSITION PRODUCTS AND CONDITIONS: If burned, gives off carbon monoxide, carbon dioxide, nitrogen oxides, aromatic amines, aldehydes, and hydrogen cyanide.

SECTION VIII: SPILL OR LEAK PROCEDURES

RESPONSE TO SPILLS: Stop discharge and contain spill or contaminated material using dike, barrier or other means. Recover with pumping equipment, vacuum truck, sorbent vermiculite or other means. Place contaminated material in suitable container(s) for further handling.

HAZARDS TO BE AVOIDED: Do not flush into stream, other bodies of water or storm sewer. Avoid contact with skin or clothing. Other hazards see Section IV FIRE AND EXPLOSION DATA and Section V HEALTH HAZARD DATA.

SPILL NOTIFICATION: Check Federal and State reporting regulations.

DISPOSAL METHODS:

1 Recycle if feasible.
2 Incinerate at authorized facility.
3 Treatment at industrial or liquid treatment facility.
4 Landfill after solidification in a facility authorized to receive waste.

NOTE: THIS MATERIAL, IF BEING DISCARDED, SHOULD BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION IX: CONTROL MEASURES

RESPIRATORY PROTECTION: Wear NIOSH-MSHA approved self-contained positive pressure breathing apparatus as necessary within equipment limitations. Comply with OSHA 1910.134 (CFR), respiratory protection. Contaminant levels will vary dependent on the operation. Industrial hygiene consultation is recommended to assist in respirator selection, use and training.

FOR HANDS, BODY: Chemical resistant gloves recommended for hand protection, work clothing for general body protection.

FOR EYES: Wear safety glasses, chemical goggles or face shield (eight inch minimum).

VENTILATION: Provide adequate ventilation to minimize inhalation. Mechanical (local exhaust) recommended for all spray operations and elevated temperature uses.

SECTION X: SPECIAL PRECAUTIONS

RECOMMENDED STORAGE PRACTICE AND CONDITIONS: Store between 50 and 100 degrees F (10 and 38 degrees C). Storage at higher temperatures causes polymerization.

OTHER PRECAUTIONS: For industrial use only. Eye wash and shower should be available. Use only under well ventilated conditions. For personal hygiene protection, personnel should wash thoroughly after handling product. Always wash up before eating, smoking, or using washroom facilities. Do not breathe vapor. Do not contact eyes, skin, and or clothing.

SECTION XI: LABELING INFORMATION

DOT SHIPPING NAME:	Not regulated by DOT
DOT IDENTIFICATION NO.:	Not applicable
DOT LABEL:	Not applicable
MORTON PRECAUTIONARY LABEL:	177

SECTION XII: USER'S RESPONSIBILITY

A bulletin such as this cannot be expected to cover all possible situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions in addition to those described herein, are required. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. Morton Thiokol, Inc. must rely on the user to utilize the information we have supplied to develop work practice guidelines and employee instructional programs for the individual operation.

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